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this insect swarmed in such numbers as to cover every exposed surface, and literally to darken the air to a height of fifty to seventy-five feet. When the Ephemeræ emerge from the water, their flight is weak and uncertain. Instinct teaches them that they are carrying an extra armor, and they seek at once the nearest support as a place on which to moult. At such times these insects are as easily disturbed as a swarm of bees. A gust of wind from an unexpected quarter, giving a slight rustle to the leaves, will often cause them to rise in clouds from each branch. This motion seems a circling one; but the appearance is probably due to the fact that many of the insects are moving back upon the branches, while others are still ascending. No other insects were at all common along the lake during this time. It may be worth placing on record that that venerable citizen known as the oldest inhabitant was speechless in the presence of these swarming millions. His memory could not recall another year in which the numbers were worthy to be compared with those of 1884. It will be impossible to convey in words an adequate conception of this invasion to those who have never witnessed any thing of the kind.

Near the dock at Lakeside there is an electric lamp suspended about twenty feet above the ground. As might be expected, this became an object for attack as soon as the current was turned on in the evening. On the morning of July 7 the layer of dead insects covered an area of not less than twenty-five square feet, and was fully *six inches deep immediately underneath the lamp*. Kelley's Island, four miles distant, appeared all the while as if enveloped in such a cloud of dust as rises over a race-course. On the evening of July 6 a wind compelled the insects to fly very close to the surface of the water, and their numbers appeared fully as great as the snowflakes of a winter's storm. During these ten days the invasion extended along the entire southern shore of the lake, from Buffalo, through Cleveland, Sandusky City, and Toledo, to Detroit. After a rain-storm the water of the lake was dense with them to a depth of at least two feet. Along the beach they were gathered in windrows. As far as my observation goes, fish will not eat the dead insects, but greedily devour living ones. The minnows are very expert at this work, rarely failing to make a capture if the insect has touched the water.

According to Packard, all the Ephemeridae pair while on the upper surface of the water. This is not strictly correct, for any afternoon one could see thousands of couples flying in the air and at elevations as great as fifty feet. When this took place over the water, the couple almost invariably fell into the lake, and was devoured by the fishes. Is nature producing a stronger-winged variety?

EDWARD T. NELSON.

Ohio Wesleyan university,
Delaware, O., July 28.

[The phenomena seen by Professor Nelson, as described by him, appear to be different from those witnessed by Rev. Mr. Abbott, and in all probability a wholly different insect was concerned. The myriads of Ephemeridae mentioned by both writers have been not unfrequently witnessed. A woodcut of a street-lamp in Cleveland, swarming with Ephemeridae, will be found in Morse's 'First book of zoölogy.' We have ourselves seen, from a long distance, windrows of their dead bodies and exuviae along the shore of Lake Winnipeg for very many miles, while the water of the lake was so covered with them that one could not dip up a cup of clear water. — ED.]

Man and the mastodon.

Having had occasion recently to look over numbers of the *American journal of science* of forty years ago, I have met with several notices of archeological interest. Among them is the following, in an article on the suburban geology of Richmond, Wayne county, Ind., by Dr. John T. Plummer, vol. xlv., 1843, p. 302:—

"A tusk [of the mastodon or mammoth] was exhumed from the gravel, fifteen feet below the surface, while excavating the Whitewater Canal, near Brookeville, about thirty miles south of Richmond; [and] a *club-shaped* implement, formed apparently of cliff-limestone, was also taken out of the gravel ten feet below the surface, near the spot where the tusk was found."

This implement is described as "seventeen inches long, rounded at one end, tapering towards the other extremity." I do not remember to have seen any reference to this in recent works; but as Dr. Plummer seems to have been an intelligent observer, and as he calls attention to the resemblance of this implement to an 'Indian hommony pestle,' and to the remarkable fact that it was found under the above conditions, the note should be borne in mind, and other implements looked for in the gravels of the vicinity named.

In the same article are noticed an ornament called ivory by Dr. Plummer, but probably shell, as like mistakes are often made (p. 301), mounds (p. 313), and (on p. 303) "several sticks, and a chip having palpable marks of an edged tool upon it," found nearly thirty feet below the surface in excavating a well in Richmond.

F. W. PUTNAM.

THE MADISON EDUCATIONAL CONVENTION.

THE meeting of the National educational association at Madison, Wis., which closed its sessions on Friday, July 18, was the largest ever held in this country, and probably the largest of its kind in the world. Every state and territory in the Union was represented, and over six thousand teachers were on the ground. The weather was fine, the town beautiful, and very bountiful in its hospitality, the excursions numerous, the speakers eloquent, the exposition, on the whole, more instructive, and in some departments larger, than at Philadelphia in 1876. Everybody was there, was heard, and most who desired it had some office provided for them, and had their names and words spread over the land by the efficient agent of the associated press. Half a dozen meetings were going on at the same time, and manuscript enough to run as many educational journals for the year was evolved; so that those who went will not need to read for one year. There were committee meetings